

# *Elecard Group*

*August '08*

**Multimedia products and video compression technologies development since 1988**

# Company

## ***Elecard Group***

- Established on April, 22<sup>nd</sup>, 1988
- 7 companies, over 160 employees



## ***JSC Elecard Devices***

- Established in May 2005 to capitalize on all Elecard's developments in IPTV/DVB
- Started to work from August 1<sup>st</sup>, 2006. 72 engineers and all IPTV/DVB related IP was transferred from other Elecard companies to Elecard Devices.

## ***Elecard Devices today***

- 118 highly qualified engineers
- More than 20 million end-users
- More than 6000 companies from 55 countries licensed ED products
- Customer geographic breakdown:
  - 40% - North America
  - 35% - Europe
  - 15% - South East Asia
- More than million references from Google by searching "Elecard"
- Industry recognition

# Accomplishments

- Elecard gained the leading position in providing the market with high-quality MPEG-2 codec
- 1st version of Elecard AVC/H.264 decoder released in 2003. Rated among 5 best by quality and performance
- 1st in the world H.264 /AVC satellite broadcasting in cooperation with BBC (Great Britain) in 2004 in Amsterdam
  - 1st in the world terrestrial H.264/AVC broadcasting from several sources during Tomsk 400-year anniversary celebration in 2004 in Tomsk
  - 1st in Russia HDTV H.264/AVC broadcasting via Yamal-202 satellite in April 2006



# Main Products

## End-user software

- Consumer: MPEG Player, Converter Studio, XMuxer Lite, PlugIns
- Professional: StreamEye Studio, Converter Studio Pro, XMuxer Pro

## Head-end IPTV/DVB streaming servers

- X-Works streaming server
- CodecWorks transcoding server
- V-Cinema

## Set-Top Boxes iTelec series

- Low cost MPEG-4 DVB-T + IP, based on NXP 8950
- HD MPEG-4 DVB-T + IP, based on NXP 8935
- Low cost MPEG-4 IP, based on TI DaVinci 6443/6446
- HD MPEG-4 IP, based on DaVinci 6467

## R&D activities

- Every codec for every platform
- Optimization for Massive Parallel Processors – NVidia CUDA, Ambric
- FPGA development – IP cores for video compression coprocessors

# Products PC

- **Elecard MPEG Player** is a high-quality full-featured multimedia player designed to bring you the outstanding video and audio quality as well as support for the newest media formats.
- **Elecard Converter Studio** is designed for professional conversion of media data to HD DVD, Blu Ray, AVCHD and HDV formats at high-speed with high picture quality.
- **Elecard IPTV MPEG-2 and AVC Plugins for Microsoft Windows Media Player** enable the popular multimedia player to playback MPEG-2 and AVC video.
- **Elecard XMuxer Pro** is designed for editing: extract content from Program Streams into Transport Stream without re-encoding, merge files and trim scenes, get rid of lip asynch problem.
- **Elecard StreamEye Studio** is a set of powerful programs for video quality analyzing, debugging video and system streams and troubleshooting problems in the encoded stream for further video compression optimization.
  - **Elecard Codec SDK G4** product line features CODEC and Video Transform SDKs written in managed and unmanaged C, C++, C# and comprising DirectShow® filters for MPEG-2, MPEG-4, AVC/H.264 standards.



# StreamEye Studio

- Deep stream parsing and displaying information in highly optimized user interface.
- Analysing the video quality of the encoded and broadcast content
- Troubleshooting problems in the encoders under development for further video compression optimization.
- Ensuring compliance with the video standards.

<b><i>Elecard StreamEye</i></b>	<i>Visual representation of the encoded video features and a stream structure analysis of MPEG-1/2/4 or AVC/ .264 VES, MPEG-1 SS, MPEG-2 PS and MPEG-2 TS.</i>
<b><i>Elecard Video QuEst</i></b>	<i>Calculation of video quality metrics, such as PSNR, NQI, VQM, SSIM, DELTA, MSE and MSAD.</i>
<b><i>Elecard Stream Analyzer</i></b>	<i>syntax analysis of the encoded media streams and presentation of the analysis log in a human readable form. MPEG-1 Video/Audio, MPEG-2 Video/Audio, AAC, AC3, AVC/H.264.</i>
<b><i>Elecard YUV Viewer</i></b>	<i>Viewing of YUV data sequence in YUV video files, comparison of files to determine if the binary images match, and demonstration of the result of the comparison. Calculating quality metrics, such as PSNR, NQI and VQM.</i>
<b><i>Elecard Buffer Analyzer</i></b>	<i>Analysis of the decoder video buffer parameters to ensure system operation stability.</i>



# IPTV Head-End Reference Designs

Elecard offers a wide range of IPTV reference designs that provide full-featured content preparation, streaming, video-on-demand, time-shifting and set-top box solutions that can be flexibly configured to meet your most demanding needs.



**CodecWorks** – software based MPEG-2, MPEG-4 part 10 (H.264/AVC), H.263 real-time video encoders and decoders provided as reference designs targeting system integrators who want to build ready-to-use encoding and transcoding solutions with market leading video quality.

**V-Cinema** – feature-rich reference designs for manufacturing robust, multifunctional Video on Demand and TimeShift servers based on the latest achievements in networking and video compression technologies.

**X-Works** – reference designs for streaming data from satellite or terrestrial broadcast into IP networks.



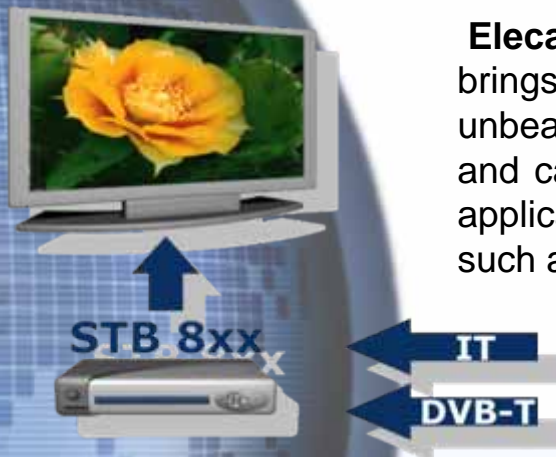
# Set-Top Boxes

Elecard STB reference designs target systems integrators and manufacturers who produce STBs for service providers delivering a range of advanced broadcast, on-demand, and interactive TV services. MPEG-2 SD&HD and AVC/H.264 SD support, AAC, MP3, advanced processing, Internet browsing.

**Elecard iTelec STB 6xx** IP Set-Top Box reference design is a complete software design based on the TI DaVinci architecture system-on-chip (SoC) processors TMS320DM6443 and TMS320DM6446. STB 61x supports versatile transport demultiplexing, MPEG-2, AVC/H.264 video decoding.



**Elecard iTelec STB 8xx** is a high-end Set-Top Box reference design, which brings the incredible video quality along with the must-have features at an unbeatable price. Powered by Philips Nexperia PNX8950, it works really fast and can process a lot of different tasks simultaneously, thus expanding the application field and letting the user take advantage of the additional features, such as internet browsing and organizing the photograph album.





# FPGA Solutions

Elecard offers optimized IP cores for the use in FPGA applications designed for real-time encoding and decoding of video data in the AVC/H.264 format.

- **AVC/H.264 CABAC IP Core** - designed for real-time video encoding systems. Provides ISO/IEC 14496-10:2005 compliant functionality and can be included in hardware AVC encoders. HD video up to 1080i
  - **AVC/H.264 Motion Estimation IP Core** - supports different block sizes and RDO (rate distortion optimization), thus may be used in AVC encoders. Performance up to True HD 1080i
  - **AVC/H.264 In-loop De-blocking filter IP Core** - AVC/H.264 Deblocking Function Engine core is designed for post-processing applied to video sequences. Can be used in AVC/H.264 hardware accelerator applications that require real-time processing.
  - **HDAccess SDI HD capture board** – PCI-X board for receiving and transmitting uncompressed video and audio streams through Serial Digital Interface. Capture Core, Motion Estimation, Motion Compensation, Intra Prediction, Intra Compensation, Deblock, CABAC, Renderer, DVB-ASI physical layer, MPEG-2 TS multiplexer and demultiplexer

# Elecard Customers

Elecard customer base runs to 6000 companies and about 20M end-users.





*Thank you!*

